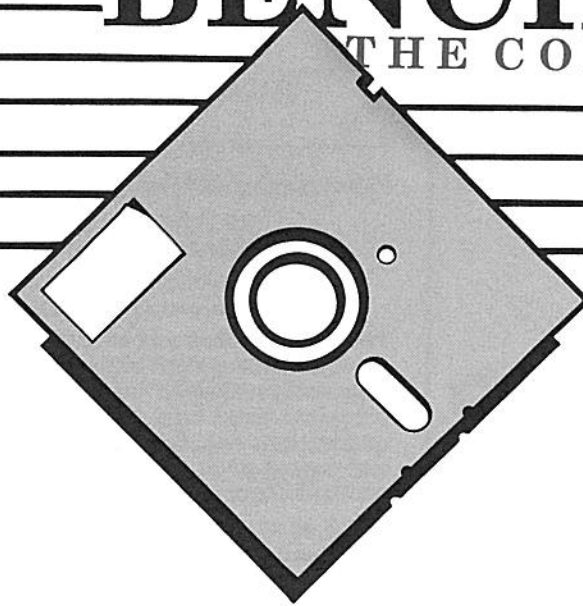


BENCHMARKS

THE COMPUTING CENTER



University of North Texas
VOLUME 9 NUMBER 7
DECEMBER 1988

IN THIS ISSUE . . .

GENERAL INFORMATION

	PAGE
Just When You Thought it Was Safe	1
Guidelines for Purchasing Anti-Virus Software	1
Disk Space Low, Additional Research Volume Available	2
Academic Systems Shutdown Scheduled	2
7171 Protocol Converter Available	3
Computing Center Employee Honored	3
Computer Graphics User Group Started	3
Semester Break Hours	4
Classroom ID-codes to Expire	4
Comserve: BITNET File Server for Communications & Social Sciences	4
Benchmarks Forum	5

MICROCOMPUTERS

Statistical Software for IBM PCs	6
Micro-tips	7

VAX COMPUTER CLUSTER

Using TELNET on the VAXcluster	8
VAXcluster Usage Statistics	9

COMPUTER SERVICES

Mainframe Performance Statistics	10
Disk Backup Schedules	11
ACADemic (NAS) Program Hit Parade	12





SERVICES AVAILABLE TO USERS OF THE UNT COMPUTING FACILITIES

The UNT Computing Center is located in the Information Sciences Building (ISB), Room 119. Phone Numbers:

Computing Center: (817) 565-2324
Help Desk: (817) 565-4050
Graphics Lab: (817) 565-3479
ISB/I/O Area: (817) 565-3890
BAI/O Area: (817) 565-2350

All personnel listed below can be contacted either by calling the Computing Center or by sending them electronic mail on MUSIC/SP (ID-codes follow each name. All IDs are on BITNET node UNTMUSIC).

BENCHMARKS - Claudia Lynch (AS04)

Information & ID-Codes; Disk Space Problems - Marilyn Jett

Statistical/Research Support - George Morrow (AS01), Panu Sittiwong (AC09), Phanit Laosirirat (AC44)

Academic ADABAS/COM-LETE - Janis Burkham (AC55)

CRSP & COMPUSTAT Problems - Panu Sittiwong (AC09), Phanit Laosirirat (AC44)

Student Programming Problems - CSC Dept., GAB Room 542A; BCIS Dept., BA Room 152

Problems with JCL, Passwords, or Operating Systems; or Communication/Terminal Problems - Help Desk

Data Entry; Test Scoring & Analysis - Betty Grise

Administrative Applications - Coy Hoggard

Printout Retrieval - ISB or BA I/O Operators



DIALING-UP UNT COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:

300/1200 BAUD: (817) 565-3300, (817) 565-3499

2400/9600 BAUD (817) 565-3461

2400/9600 BAUD: D/FW METRO 429-6006, 429-9314

Area code 214 must dial 817 before the METRO number.

The numbers that accommodate multiple baud rates have an autobaud feature that requires you to hit the <RETURN> key repeatedly so that the receiving modem can determine the appropriate baud rate. When you have established a communications link, the # prompt will appear on your screen and you can enter one of following CALL commands to connect with the computer of your choice.

CALL 8040 connects with the NAS/8083 (supports line editing or PCWS). Operating environments available are: MUSIC/SP, VM/CMS.

CALL 3270 connects with the NAS/8083 through a 3270 protocol converter (supports full-screen editing). Operating environments available are: MUSIC/SP, VM/CMS, ADABAS/COM-LETE, PHOENIX

CALL DEC connects with the VAXcluster (VMS, Eunice)

CALL 780 connects with the Research VAX (Unix)

CALL 3000 connects with the Libraries' HP-3000 (Bibliographic data base).

CALL 6800 connects with the NBI (Unix)

Communications Settings

LAN addresses	Data Bits	Parity	Stop Bits
DEC, 3000	8	N	1
8040, 3270, 780, 6800	7	E	1

HOURS FOR UNIVERSITY OF NORTH TEXAS COMPUTER ACCESS AREAS : FALL 1988*

Location	Times	Days
Computing Center RJE	Noon-Midnight 7 a.m.-Midnight 7 a.m., Tuesday-Midnight, Saturday (Open 24 hours/day)	Sunday Monday Tuesday-Saturday
ISB 110 Terminal Area	2-10 p.m. 7:30 a.m.-Midnight 7:30 a.m.-6 p.m. 9 a.m.-6 p.m.	Sunday Monday-Thursday Friday Saturday
College of Business	Noon-11:45 p.m. 8:15 a.m.-11:45 p.m. 8:15 a.m.-7:45 p.m.	Saturday, Sunday Monday-Thursday Friday
GAB 550C	2 p.m.-Midnight 8 a.m.-Midnight 8 a.m.-5 p.m. 2 p.m.-8 p.m.	Sunday Monday-Thursday Friday Saturday
Graphics Lab	Noon-10 p.m. 8 a.m.-10 p.m. 8 a.m.-6 p.m. Noon-5 p.m.	Sunday Monday-Thursday Friday Saturday

Benchmarks was produced using Xerox Ventura Publisher on an NTAT and printed on an HP LaserJet II printer. Unless otherwise noted, articles or information may be reproduced for nonprofit purposes provided the publication and issue are fully acknowledged.

GENERAL INFORMATION

Just When You Thought it Was Safe . . .

By Claudia Lynch, *Benchmarks*
Editor (AS04@UNTVMI)

There has been a lot of publicity about viruses since the Internet virus was unleashed in November (see last month's *Benchmarks* for a related story). Other reports of virus outbreaks appear to be mostly localized occurrences. A MAC virus called *nvir* has turned up in some labs in the northern U.S. and Canada, and an altered version of the Pakistani Brain Virus was unleashed at the University of Houston PC labs last month. The latest report on this type of thing involves a fairly innocuous virus called *CHRISTMA EXEC*. As you may have guessed, *CHRISTMA EXEC* propagates in VM/CMS environments. It draws a Christmas card on your screen and sends out multiple copies of itself to everyone it can find by accessing *NAMES*, *NOTEBOOK* and *NETLOG* files. If you run across this file on your CMS ID, please delete it! It can cause major problems on BITNET. ♦

You Read It Here First

A Journalism lab instructor, whom students delighted in harassing, asked a student why she was wearing rubber gloves while working at a computer.

"Because," the student replied, "I don't want to catch a computer virus."

Submitted by Heidi Kukis, UNT journalism student

Guidelines for Purchasing Anti-Virus Software

The whole virus issue seems overwhelming to most people, and it is hard to know exactly what action one should take in combatting this sort of thing. In an effort to aid our readers in resolving this problem, we have reproduced a portion of a virus guide concerning evaluation of "virus protection packages." The guide, called *Computer Viruses: A Rational View*, is available free from an anti-virus software vendor called RG Software Systems. The text was written by Raymond M. Galth, president of RG Software Systems, and a complete copy of the guide can be obtained from the company at 2300 Computer Ave. Suite I-51, Willow Grove, PA 19090 (215) 659-5300.

A "Virus Protection" package, like a security system for your home, requires close scrutiny. You want the system to do the job unobtrusively, and yet be effective.

TWELVE SPECIAL CONSIDERATIONS FOR VIRUS PROTECTION PACKAGES:

1. Amount of impact the package may have on your computer's performance.

If the package is "RAM Resident," does it noticeably slow down your machine's operations?

If so, with what type of operation? Are program start-ups slowed? Are database operations slowed?

2. Level of dependency on operator intervention.

Does the package require the operator to perform certain tasks on a regular basis in order for it to be effective? (Such as only checking for virus conditions on command.)

Does the package require much time to install and keep operational? i.e.: Each time any new software is installed on the system, must the protection package be used?

3. Impact on productivity ... Annoyance level.

Does the package periodically stop processing and/or require the operator to take some action. If so, does the package have any capability to learn its environment and stop its interference?

4. False alarms.

How does the package handle situations that appear to be viruses but are legitimate actions made by legitimate programs?

Are there situations where legitimate jobs will have to be re-run or the system re-booted because of the protection package? How frequently will this occur?

How much additional end-user support will the package require?

5. The probability that the package will remain in use.

Will there be any interference or usage requirements that will discourage the user from keeping the package active? (It won't be effective if they quickly desire to de-install it and perhaps only pretend they are using it when management is present.)

6. Level of effectiveness it provides in combatting viruses.

Will it be effective against viruses produced by someone with an experience level of:

Level 1 - "Typical End User"? (Basic knowledge of using applications and DOS commands.)

Level 2 - "Power User"? (Knowledge of DOS Command processor, Hardware functions, BASIC programming, etc.)

Level 3 - "Applications Programmer"? (Knowledge of programming languages and DOS service calls.)

Level 4 - "Systems Engineer"? (Knowledge of DOS and Hardware internal functions.)

Level 5 - "Computer Science Professor that develops viruses for research purposes"?

Which types of intrusion will it be effective against?

"Covert entry"?

"Overt Entry"?

Does it detect a virus attempting to spread or "clone" itself?

Does it detect a virus attempting to place itself into a position to be automatically run?

If a virus gets into the computer, which types of virus damage will it detect?

"Massive Destruction"

"Partial Destruction"

"Selective Destruction"

"Random Havoc Destruction"

"Annoyance"

7. Does the software provide any assistance for "post mortem" analysis of suspected problems?

i.e.: If a virus symptom is detected and the computer is brought to a halt, is there any supporting information for analyzing the problem other than the operator's recall of events?

8. Impact on your machine's resources.

How much RAM is used?

Is any special hardware required?

9. Is the product compatible with:

Your hardware configuration.

Your Operating system version.

Your network.

Other software that you use, especially TSR's.

10. Can the package be used by current computing personnel without substantial training?

What type of computing experience is required to install the package?

11. Background of the publisher.

References . . . Who is using this or other products from this publisher? How is this company perceived by its customers? The press?

How long has the publisher been in business?

Was the product Beta Tested? . . . By valid, well-known organizations or by friends of the company's owner?

Was the product tested against any known viruses? Successfully?

What about on-going support? In what form? At what cost?

Does the company plan to upgrade its product periodically?

What is the upgrade policy? Expected costs?

12. Does the package provide any other useful benefits to the user besides virus protection? ♦

Disk Space Low, Additional Research Volume Available

By George Morrow, Academic
Computing Staff (AS01@UNTMUSIC)

The OS/MVS disk volume ACAD03 is now available for storing faculty research data. Since there is little space presently available on ACAD00 (the "research pack"), all faculty are urged to use ACAD03 to store their research data files. Please feel free to move your research data files from ACAD00 to ACAD03, although this action is not required.

Remember that any data files stored on an academic disk (ACAD00, ACAD01, ACAD02, or ACAD03) will be archived (removed from the disk) if it has not been referenced in the last 365 days.

If you have any questions about accessing any of these disk volumes, contact the Computing Center (565-2324) for assistance. ♦

Academic Systems Shutdown Scheduled

The VAXcluster will be down Sunday, December 18th from 3-5 p.m. for installation of new terminal server software and all day Monday, December 19th for upgrading to VMS 5.0. Some software may not function correctly until upgraded to versions that work with VMS 5.0. Those upgrades should be accomplished by December 23.

All software systems on the Academic portion of the NAS 8083 will be shut down on all or part of Wednesday, January 4, and Thursday, January 5 for an upgrade to VM/SP version 5.0. During the upgrade, all software systems (including MUSIC, CMS, and MVS) will be unavailable to users. The upgrade to VM, version 5.0 will bring additional functionality for CMS users, but will not change the use of MUSIC or MVS. We are sorry for any inconvenience this down-time will cause. ♦

7171 Protocol Converter Available

By Philip Baczewski, Associate
Editor of *Benchmarks*
(AC12@UNTMUSIC)

The Computing Center is pleased to announce the installation of an IBM model 7171 protocol converter. This device is similar in function to the Renex protocol converters which are accessed through "CALL 3270." The IBM 7171, however, provides 3270 terminal emulation with much faster response times than the Renex models.

Access to the 7171 ports is available now by issuing the CALL 7171 command from the LAN # prompt. During the transition period from now through January, the Renex protocol converters will continue to be available. In January, the Renex units will be replaced with 7171 ports and CALL 3270 will once again be the command for accessing all protocol converter ports.

To use the IBM 7171 protocol converter, as mentioned above, enter CALL 7171 from the # prompt. You will then be asked to enter a terminal type. If, when using CALL 3270, you enter the terminal type 02, then for 7171, enter VT100. At this time, VT100 is the only terminal type which has been tested and made publicly available. We are currently trying to determine the terminal types which are used frequently. If you use a terminal type other than 02, please contact Claudia Lynch (userid AS04) at the Computing Center (565-2324, ISB 119). By letting us know what type of terminal you use, you can help us in providing the terminal types necessary for your use of the 7171.

When using an IBM 7171 protocol converter port, you can use the same escape sequences used for the VT100 terminal type (02) on CALL 3270 with the following differences:

- With the 7171, if you try to type in a "protected" field, you will get a warning beep and no characters will appear, but you can im-

mediately use the arrow keys, the TAB key, or the RETURN key to move the cursor to a valid typing field without having to press Reset (<CTRL> <R>). Pressing <RETURN> will also cause the screen to be updated, registering whatever changes have been made.

- The reset key, <CTRL> <R>, will perform a master reset which will reset the terminal and redraw the screen. Since redrawing the screen may take some time (depending on your communications baud rate) <CTRL> <R> should probably be used only when absolutely necessary. If, however, your terminal appears to be "hung," try pressing <CTRL> <R>.
- Insert mode is turned on in the usual manner, but normally should now be cleared by issuing the insert command again. In other words, the insert command will "toggle" insert mode on and off. Insert mode will also be turned off by pressing reset (<CTRL> <R>), <RETURN>, or any PA or PF key.
- The IBM 3270-type terminals which are emulated by the 7171 have two characters that most VT100-type terminals don't have. These are the cent sign, and the "logical not" symbol. The 7171 will translate the terminal caret key (usually <SHIFT> <6>) to the "logical not" symbol, and will translate the terminal backslash key to the cent sign.

If you have any questions about using the IBM 7171 protocol converter, please contact the Computing Center Help Desk (565-4050, ISB 110). ♦

Computing Center Employee Honored

Don Butler, a Programmer Analyst in the Administrative Information Systems area of the Computing Center, was honored as an outstanding employee at the Chancellor's Sack Lunch on October 25. Don is the Student Records Team leader and has put in many late hours in the service of UNT. ♦

Computer Graphics User Group Started

By Jim Stinson, Academic
Computing Consultant
(AC38@UNTVAX)

An organizational meeting was held on November 17 in an effort to create an ACM SigGraph (Association for Computing Machinery Special Interest Group for Computer Graphics) in the Dallas area. The meeting was held in the Cecil Green building at the University of Dallas in Richardson and was attended by about 75 people. Elizabeth Smith and Mike Goss from Texas Instruments conducted the meeting.

The group is for those interested in the field of computer graphics, and in particular, its uses and developments in this geographic area. The group is open to anyone interested in any aspect of computer graphics and one doesn't have to be a member of the ACM to join. Dues will probably be between \$10.00 and \$20.00 a year and meetings will be held once a month. A permanent time and place for meetings has not been decided, but will likely be the 3rd Thursday of the month at UTD in Richardson.

For more information, call Mike Goss at 214-733-7018 or Elizabeth Smith at 214-343-7667 for more details. The next meeting is planned for Jan 19, 1989. ♦



Semester Break Hours For University Of North Texas Computer Access Areas : December 17, 1988 - January 17, 1989

Location	Dates	Times
Computing Center RJE	Dec. 17, Dec. 19-Dec. 23 Jan. 2-Jan. 7, Jan. 9-Jan. 14 Dec. 18, Jan. 8 Dec. 26-Dec. 30	8 a.m.-Midnight noon-Midnight 8 a.m.-5 p.m.
ISB 110 Terminal Area	Dec. 17, Jan. 14 Dec. 19-Dec. 23, Jan. 2-Jan. 6, Jan. 9-Jan. 13 Dec. 29-Dec. 30 Jan. 15	9 a.m.-6 p.m. 8 a.m.-5 p.m. 1 p.m.-5 p.m. 1 p.m.-Midnight
College of Business	Dec. 16	8:15 a.m.-4 p.m.
GAB 550C	Dec. 16	8 a.m. - 5 p.m.
Graphics Lab	Dec. 16 Dec. 17 Dec. 19-Dec. 23, Jan. 2-Jan. 6 Jan. 9-Jan. 13 Jan. 14-Jan. 15	8 a.m.-Noon 11 a.m.-5 p.m. 10 a.m.-6 p.m. 10 a.m.-8 p.m. Noon-5 p.m.



Areas are CLOSED on dates not listed.



Classroom ID-codes to Expire

All classroom ID-codes will expire on Saturday, December 17. If you require files to be saved beyond this date, you must apply for an individual ID-code IMMEDIATELY, so that your files may be transferred. If you need your files after December 17th, make your request NOW for an individual ID-code, and ask that your class files be transferred. Note that you will need your department chairperson's signature and a faculty member's signature for your request to be processed. NEW USERID Code Application forms may be obtained from the Computing Center offices (ISB 119). ♦



COMSERVE: BITNET File Server for Communications & Social Sciences*

Comserve, a file server on the Bitnet network established at Rensselaer Polytechnic Institute, is an information service for scholars and students in any discipline who are interested in human communication studies. *Comserve* originated in 1986 as a name and file server, but has expanded to serve "just about everything except cheeseburgers," according to a recent review.

As a file server, *Comserve* gives anyone on Bitnet or an associated network access to a database of over 500 files in numerous categories: instructional materials, syllabi, bibliographies, research instruments, calls for papers, funding opportunities, conference announcements, and curriculum descriptions for graduate programs in communication studies. It also allows users to add their

own names, mailing/computer addresses, and fields of interest to a central database in order to receive notices of upcoming professional activities. Full Boolean searching of the database is also available to users.

As a conference system, *Comserve* provides access to thirteen ongoing listserve-type symposiums covering a full range of communication specialities. System topics include rhetoric, mass communication, ethnomethodology, communication philosophy, communication and gender, as well as the role of communication in the interpersonal, organizational, health, and political fields.

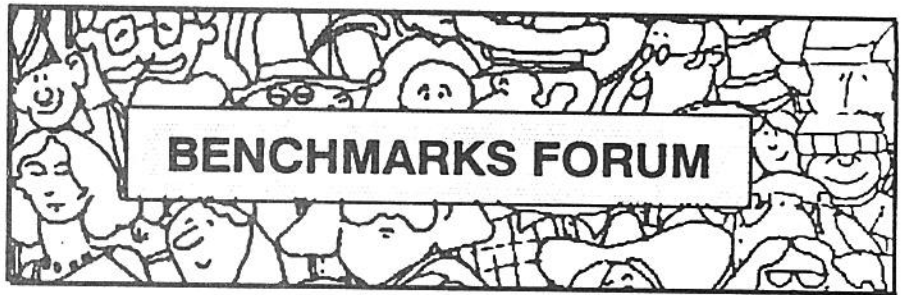
Used as a bibliographic reference system, *Comserve* allows users to search electronic indices of major communication journals. It also maintains *Newsline*, a special listserve feature that sends information about service enhancements and database updates to the network's users.

Comserve is becoming an industry staple, and is routinely accessed by journal editors, department chairs, officers of major organizations within the discipline, and numerous academicians and scholars. The listserve is also being introduced to communication students by faculty members, who increasingly require access to the network as a course component.

Comserve may be reached via electronic mail at:

SUPPORT@RPICIGGE (*Comserve's* editorial office). You may then request a copy of the *Comserve* User's Guide by sending a computer note containing your mailing address.

*Taken from Public Pages: The Newsletter of the Emory University Computing Center, November/December, 1988 (p. 2) ♦



BENCHMARKS FORUM is intended to serve as a vehicle for answering questions that may be of general interest to the user community. If you have a question, please send electronic mail to the *Benchmarks* editor (AS04@UNTVM1) or write it down and drop it by the Computing Center. We will try to answer it in the next issue.

Question: I was running a BCIS-LOAD job when it abended on the ADALD1 step before the ADALD2 step was executed. When I try to run the BCISLOAD job again, it gives me an ERROR 10 on the ADALD1 step. I ran an ADAREP and it appears that the file that I was attempting to build does not currently exist on the database. I'm caught in the middle! It won't let me load the file but it won't let me delete it, either. What do I do now?

Answer: Due to your original abend, ADABAS has the file number in question locked out from any activity attempted against it. You need

to run the BCISRECV (AB PDS) to reset/recover the file number. You will need to provide this utility with the jobname of the job that abended initially during ADALD1. This will unlock the file number, and the BCIS-LOAD job can be run again.

Question: I am running jobs from COM-LETE and I want to change my batch password. How do I go about getting it changed, since I do not have a MUSIC account?

Answer: To change your batch password, simply type the old batch password and the new batch password on your JOB card in the PASSWORD field as follows:

.....PASSWORD=(oldpass,newpass)

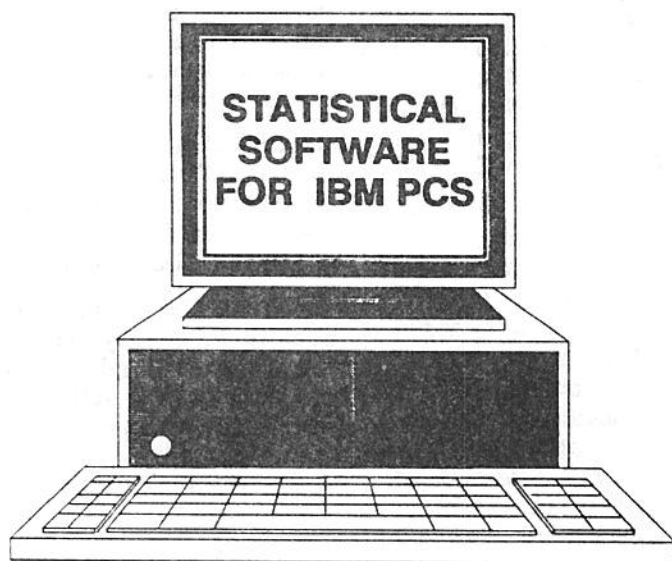
Then the next and succeeding times you run a job, use the new password. (To save yourself some possible problems, run the password change on a job that you feel certain will execute successfully.) ♦

Benchmarks Reader/User feedback is encouraged. Send all letters, suggestions, etc to (AS04@UNTVM1) or to the Benchmarks Editor at:

**University of North Texas Computing Center
NT Station, Box 13495
Denton, Texas 76203**



MICROCOMPUTERS



The University of North Texas currently has site licenses for three statistical packages that run on IBM microcomputers: SPSS/PC, SAS/PC, and MICRO CRUNCH. Each license has its own rules and regulations governing the distribution of the software. These regulations are a source of much confusion among computer users at UNT. It is hoped that this article will clarify matters.

SPSS/PC: Currently, we have version 3.0 of SPSS/PC available. It includes the BASE, ADVANCED STATISTICS, TRENDS, TABLES, and GRAPHICS modules. In order to have SPSS/PC installed, the following conditions must be satisfied.

1. You must be classified as full-time faculty or staff at UNT. This includes instructors, but not Teaching Fellows, Teaching Assistants, and/or Research Assistants.
2. The PC on which SPSS/PC is to be installed must belong either to UNT or to the faculty or staff member who requested the software.
3. If SPSS/PC is to be installed on your personal PC to be used at home, it must be removed when you resign from UNT. To install SPSS/PC on your home machine, you will need to bring your PC to the Computing Center.
4. If SPSS/PC is to be installed on a Novell Network file server, all workstations on the network must be registered.

SAS/PC: The current version of SAS/PC is 6.03, and we have the BASE and STAT modules available. At the present time we are in the process of acquiring the IML module, and hope to have it available by the beginning of the Spring Semester. Criteria to have SAS/PC installed are the same as for SPSS/PC above.

Both SAS/PC and SPSS/PC are fairly similar to their counter-parts on the mainframe NAS. In fact, SAS data and programs for the mainframe will run on the PC version with no or minor modification. SPSS, on the other hand, has a procedure to convert program code and data from PC to mainframe and vice versa. The PC version, however, provides the advantage of interactive sessions which make it more convenient to use.

In order to have either SAS/PC or SPSS/PC installed, contact the Computing Center at (817) 565-2324. Before they can be installed on your PC, you need to have a minimum of 13 megabytes of hard disk space available.

SAS/PC -vs- SPSS/PC +

It is possible to request that both SAS/PC and SPSS/PC + be installed. However, installing both is impractical if you have a hard disk smaller than 30 megabytes in size. Hence, it is a matter of personal choice to select one over another. This section outlines some advantages and disadvantages of the two programs in order to help you make a selection.

A Look at SAS/PC

Advantages

1. SAS/PC and SAS mainframe are very similar in their command syntax. Hence, programs and data are interchangeable. In fact, with the Micro to Host Link module, you can run SAS on CMS while working on SAS/PC. You can even use data stored on both systems. Data can be uploaded and downloaded with SAS PROC.
2. SAS provides extensive programming capability in its data step. This makes data manipulation very flexible.
3. With the IML module, you will have the capability to do matrix operations and computations. This will make it easier to customize statistical procedures appropriate to your research.

Disadvantages:

1. SAS is slow when running on 8086 class machines (this includes the NTPC).
2. SAS is licensed annually. You will need to get an upgrade from the Computing Center every year.
3. SAS is more difficult to learn for a new user.

A Look at SPSS/PC

Advantages:

1. The menu system makes it easy for a new user to use.

2. With the combination of Microsoft Chart software, Graphics can be easily generated with SPSS/PC. You need to acquire Microsoft Chart on your own, however.

3. Data is interchangeable with mainframe SPSS^X. Programs, however, will require a simple conversion process.

4. Does not require an annual update.

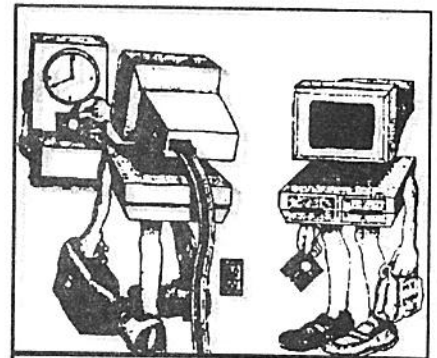
Disadvantages:

1. Data manipulation is limited. This may cause some inconvenience if you need to do a complex data transformation.
2. Does not have matrix operation and manipulation capability.

MICRO CRUNCH

Micro Crunch is a lesser known statistical package in comparison to SAS/PC and SPSS/PC. It provides most of the statistical procedures which are available in SAS/PC and SPSS/PC. However, it does not require much hard disk space. The software is contained on two 360k floppy disks. It is easy to learn and use, and is available to all faculty, staff, and students if they plan to use it for a class-related project. To obtain Micro Crunch, you need to bring two formatted 360k floppy diskettes to the Computing Center (ISB 119). ♦

This Review was provided by Panu Sittiwong, Academic Computing Consultant (AC09@UNTVM1)



Micro-Tips

This column is intended to serve as a forum for sharing useful tips on making more productive use of microcomputers. If you have a tip that you feel may be of use to campus users, submit it to the BENCHMARKS editor for possible inclusion in a future issue.

Mixed File Types and Kermit File Transfers

If you have mixed file types, both binary and text files, and you want to perform several file transfers, it is important to remember to indicate the file types to Kermit at the time of the transfer. For example, if you wanted to upload a binary file to the VAX, you would indicate to VAX KERMIT that the file it is about to receive is a binary file. At the VAX KERMIT prompt you would type: SET FILE TYPE BINARY. You would then proceed with your file transfer. If you wanted to upload a text file after this, you would need to type the following command at the VAX KERMIT prompt: SET FILE TYPE ASCII and then proceed with the file transfer.

It is important to note that when transferring a mixture of text and binary files, "wildcard send" commands should not be used at the micro Kermit prompt. Also, if VAX KERMIT is in server mode, do not mix file types while uploading. The file type setting you give to VAX KERMIT before you put it in server mode will hold throughout the entire session. ♦

This Month's Micro-Tip courtesy of SERDACumentation, State University of Florida System newsletter, Fall 1988



VAX COMPUTER CLUSTER

Using TELNET on the Vaxcluster

By Sean Wheeler, VAX Operator
(BITNET: SEAN@UNTVAX)

TELNET is an interactive remote access terminal protocol that allows you to log in to and use a remote computer system on the ARPA Internet, as though your terminal were connected directly to the machine. Although this article is directed toward use of the VAXcluster, TELNET works similarly on the Research VAX and the NBI.

To access a remote host using TELNET you must:

- Know what host systems are available
- Specify a remote host
- Have a user account on the remote host

Hosts that may be accessed locally (UNT.EDU domain) are:

- Host Name: NBI.CSCI.UNT.EDU
Internet Address: 129.120.1.1 (NBI)
- Host Name: DEPT.CSCI.UNT.EDU
Internet Address: 129.120.1.2 (Research VAX)
- Host Name: VAXA.ACS.UNT.EDU
Internet Address: 129.120.1.3 (VAXcluster)
- Host Name: VAXB.ACS.UNT.EDU
Internet Address: 129.120.1.4 (VAXcluster)

To invoke the Telnet program, you use the command as follows:

TELNET *hostname port logfile*

If TELNET is invoked without arguments, it enters command mode, indicated by its prompt (telnet). In this mode, it accepts and executes the commands listed below. If it is invoked with arguments, it performs an OPEN command with those arguments. If you specify a logfile then Telnet will create a log of your session on the VAX. If you would like a log be sure to specify the port number. The port number for this installation is 23.

The following is a transcript of an example session.

```
$ TELNET NBI.CSCI.UNT.EDU
```

```
Trying...
```

```
Connected to nbi.csci.unt.edu.
```

```
Escape character is '^['.
```

```
login: sean
```

```
Password:
```

```
Last login: Mon Nov 7 09:47:39 from vaxa.acs.unt.edu
```

```
4.2 BSD UNIX Release 3.07 #5 Wed Sep 23 19:22:35 CDT 1987
```

```
=====
*                               N B I                               *
*                               Department of Computer Science      *
*                               University of North Texas            *
*_____*
```

```
% ls -al
```

```
total 12
drwxr-xr-x  4 sean  512 Oct 27 08:41 .
drwxr-xr-x 58 root 1536 Nov  6 16:28 ..
-rwx----- 1 sean  445 Sep  8 18:25 .cshrc
-rw-rw---- 1 sean  22 Oct 27 08:33 .forward
-rwx----- 1 sean  175 Nov 19 1987 .login
-rw----- 1 sean   6 Nov 19 1987 .logout
-rw-rw---- 1 sean  111 May 28 21:32 .mailrc
-rw-rw---- 1 sean   49 Sep  7 15:55 .plan
-rw-r--r-- 1 sean  252 Nov 18 1987 .profile
drwxrwx--x  2 sean  512 Oct 14 17:38 bin
drwxrwx--x  2 sean  512 Nov  6 15:51 class
```

```
% cd class
```

```
% ls
```

```
a1.c p2.c pp2.c test
```

Now you are in terminal mode. If you would like to issue a command to telnet then you type the escape character and the letter of the command you wish to perform. The default escape character is ^] (<CTRL> <J>).

The following is a partial list of available commands.

OPEN - Opens a connection to the host. The host specification may be either a host name or an Internet address specified in the dot notation.

CLOSE - Close a telnet session and return to command mode.

OPTIONS - Toggles viewing of TELNET options processing. When options viewing is enabled, all TELNET option negotiations will be displayed. Options sent by TELNET are displayed as SENT, while options received from the telnet server are displayed as RCVD.

QUIT - Closes any open telnet session and exits TELNET.

STATUS - Shows the current status of TELNET. This includes the peer one is connected to, as well as the escape character.

XON - Toggles local processing of <CTRL><S>, <CTRL><Q>, and <CTRL><O>. When enabled, these control characters will be interpreted locally; when disabled, they are passed through without interpretation. If using EMACS this option should be disabled (the default).

Z - Suspends current TELNET and returns user to local host.

^JO - Won't show option processing.

^D - logout ♦

VAX CLUSTER USAGE STATISTICS

October Top Ten Programs: Frequency of Runs

Program	Description	Number of Runs	Percent of Total
1. LOGINOUT	User login	87171	14.2
2. SET	VMS Utility	82081	13.3
3. DIRECTORY	VMS Utility	64336	10.3
4. DELETE	VMS Utility	57314	9.3
5. TYPE	VMS Utility	45217	7.3
6. EDT	Editor	34019	5.5
7. SHOW	VMS Utility	33770	5.5
8. SEARCH	VMS Utility	21350	3.5
9. NETSERVER	DECnet Server	21189	3.4
10. User Programs	Compiled Programs	20798	3.4

Total 615377

October Top Ten Programs: CPU Time Used

Program	Description	CPU Time	Percent of Total
1. User programs	Compiled Programs	37 10:21:22.32	76.9
2. ACC	VMS Accounting Utility	1 16:41:13.03	3.5
3. EDT	Editor	1 13:27:06.75	3.2
4. PASCAL	PASCAL compiler	1 05:43:16.87	2.5
5. DISKEEPER	Disk Compression Utility	0 20:40:10.84	1.8
6. BACKUP	VMS Utility	0 14:03:19.95	1.2
7. LOGINOUT	User login	0 12:08:07.27	1.0
8. BBS	Bulletin Board Utility	0 09:03:49.97	0.8
9. LISP	LISP Interpreter	0 07:47:39.05	0.7
10. DIRECTORY	VMS Utility	0 06:44:13.75	0.6

Total 48 16:30:10.58



COMPUTER SERVICES

Mainframe Performance Statistics

NAS/8083 Dual Processor Performance Statistics for October

CPU	SYSTEM	Scheduled Operating Hours	Planned Maintenance Hours	Planned Production Hours	Unplanned Maintenance Hours	Production Hours Achieved	System Uptime
ACAD	VM/SP3	744	0.08	743.92	0.14	743.78	99.9%
ACAD	MUSIC/SP	744	32.58	711.42	0.38	711.04	99.9%
ACAD	MVS/JES2	744	0.15	743.42	1.48	742.37	99.8%
ACAD	COMPLETA	744	0.25	743.75	6.72	743.03	99.1%
ADMN	MVS/JES2	744	0.18	743.82	0.00	743.82	100%
ADMN	COMPLETA	314	0.00	314.00	0.00	314.00	100%
ADMN	ADABASA	744	24.90	719.10	0.15	718.95	99.9%

System Uptime = (Production Hours Achieved) / (Planned Production Hours)

Production Hours Achieved = (Planned Production) - (Unplanned Maintenance)

Scheduled Operating Hours = (Planned Maintenance) + (Planned Production)

MUSIC/SP Planned Maintenance Hours include 22.25 hours for system backup and 10.18 hours for VM/SP3 system backup.

ADABASA'S Planned Maintenance Hours include 24.65 hours for system backup.

The ACAD CPU achieved 100% uptime; the NAS/7360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime. The ADMN CPU achieved 99.4% uptime; the NAS/7360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled

operation. Lost productivity hours were contributed to by the key causes appearing in the table below.

ACAD CPU:

Miscellaneous

1. COMPLETA system failure. (program in loop)	1.55 HOURS
2. VM/SP3 system tuning/improvements	0.45
3. MVS/JES2 system tuning/improvements.	1.12
4. Reset CPU clock to standard time.	0.25
4. COMPLETA system maintenance..	3.60
TOTAL	6.97 HOURS
GRAND TOTAL FOR ACAD	6.97 HOURS

ADMN CPU:

Miscellaneous

1. ADABASA system tuning/improvements.	0.43 HOURS
2. ADABASA system failure.	0.15
3. Reset CPU clock to standard time.	0.27
TOTAL:	0.85 HOURS
GRAND TOTAL FOR ADMN:	0.85 HOURS

DISK BACKUP SCHEDULES

OS/MVS Backup Schedule

OS/MVS disk packs (academic and administrative) are backed up daily, Tuesday through Saturday, from 4-6:30 a.m., and Sunday from Midnight to 3 a.m.

VM/CMS

Backups of VM system disks and CMS mini-disks are performed every Wednesday morning at 3 a.m. CMS mini-disks are also backed up every other day sometime during the early hours of the morning. Users do not have to log-off during these backups.

MUSIC/SP Backup Hours

A message will be sent to all users signed on to MUSIC/SP approximately 10 minutes before backups are begun. It will be in the form ****MUSIC SHUT DOWN AT xxxx AM-SCHEDULED BACKUP****. To find out

the backup hours while signed on to MUSIC/SP, enter **HELP HOURS**. The following backup schedule is currently in effect:

Tuesday 3 a.m. (for about 3 hours)
Weekly backup
Wednesday 3 a.m. (for about 2 hours)
Daily backup
Thursday-Monday 4 a.m. (for about 1 hour)
Daily backup

PHOENIX Backup Hours

PHOENIX is backed up weekly on Sunday night. The backup begins at midnight and lasts for approximately 30 minutes.

VAX Backup Schedule

Incremental backups of the VAXcluster are performed Monday through Thursday at 6 p.m. Users do not have to log-off, but any files that

are open at the time of the backup will NOT be backed up.

Full backups of both systems are done every Friday beginning at 8 a.m. These generally will take all day to complete. Again, users do not have to log-off, but any files that are open will not be backed up.

A "Stand Alone" backup of the system disk is done once a month. This procedure makes a copy of the system disk that can be used to restore its contents if the disk is completely destroyed. The system will be shut-down for this. Watch the system log-on message for specific times and dates.

NOTE: Requests for restoration of files should be made via MAIL to the username OPERATOR. Your file can only be restored if it existed before the last backup was done. ♦

ACADemic (NAS) Program Hit Parade

October Top Ten Programs : Frequency Of Runs

Program	Description	Number of Runs	Percent of Total
1. PGM = *.DD	Compiled Program	21929	21.0
2. IEWL	Linkage Editor	21614	20.7
3. IKFCBL00	VS COBOL Compiler	17274	16.6
4. IEV90	Assembler H	7012	6.7
5. IEBGENER	IBM Utility	6735	6.5
6. IDCAMS	VSAM Utility	5644	5.4
7. PTPCH	Dataset Lister	4842	4.6
8. SASLPA	SAS	4788	4.6
9. SCRIPT	Waterloo/SCRIPT	2377	2.3
10. SPSSX	SPSS ^X	2174	2.1

October Top Ten Programs: CPU Seconds Used

Program	Description	CPU Seconds	Percent of Total
1. SASLPA	SAS	33025	18.5
2. COMPLETX	Academic COM-PLETE	29210	16.4
3. SPSSX	SPSSX	28145	15.8
4. PGM = *.DD	Compiled Program	24471	13.7
5. IKFCBL00	VS COBOL Compiler	18293	10.3
6. FATS	Tape Verification Program	7569	4.2
7. SCRIPT	Waterloo/SCRIPT	6511	3.7
8. PTPCH	Dataset Lister	5811	3.3
9. IEV90	Assembler H	5139	2.9
7. IEWL	Linkage Editor	3156	1.8

The programs listed in this section were used the most frequently on the NAS CPU during the month of October, 1988.

Please Note that ACAD is the official designation of the part of the NAS/8083 CPU that is dedicated to faculty and student use. The portion of the computer reserved for University administrative purposes is termed ADMN. ♦

Season's
Greetings



UNIVERSITY
OF NORTH
TEXAS
COMPUTING
CENTER

Richard A. Harris, Associate Vice President for Computing
Steve Minnis, Manager, Computing Services
Dave Molta, Manager of Academic Computing Services
Coy Hoggard, Manager of Administrative Information Systems
Claudia Lynch, *Benchmarks* Editor
Philip Baczewski, *Benchmarks* Associate Editor

Get a Subscription to BENCHMARKS

Benchmarks is a vital link between the UNT Computing Center and the users of our facilities. It is important for all users of the computing facilities to maintain a file of these newsletters because they contain materials which will periodically update existing documents as well as information and suggestions on uses of OS/MVS, MUSIC/SP, the VAXcluster, Microcomputers, and other resources available to UNT students and faculty. To facilitate the dispersal of *Benchmarks*, *** FREE *** subscriptions are available. To receive yours, send the following information to us either by snail mail (the post office or campus mail) or electronically, to the UserID AS04 on MUSIC, VMS, or CMS.

Name: _____

Mailing Address: _____

PLEASE GIVE A CAMPUS ADDRESS (NOT BOX) IF POSSIBLE! -
It's Cheaper !!

☐ Renewal ☐ Change of Address ☐ Cancel Subscription

University of North Texas Computing Center

**Academic Computing Services
The Computing Center
NT Box 13495
University of North Texas
Denton, TX
76203**
